

ABSTRACT OF THE DISCLOSURE

A fuel cell system determines each of a battery charging current error, a battery voltage error, and a stack current error. The fuel cell system regulates current through a series pass element in response to a greater of the determined errors. Thus, the fuel cell system operates in three modes: battery voltage limiting mode, stack current limiting mode and battery charging current limiting mode. Additionally, there can be a fourth "saturation" mode where the stack voltage V_S drops below the battery voltage V_B as the load pulls even more current. Individual fuel cell systems can be combined in series and/or parallel to produce a combined fuel cell system having a desired output voltage and current.

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